

## CLAIMS

1. Method for producing solar cells comprising,
  - a) manufacturing wafers from a silicon ingot,
  - b) providing an image of each manufactured wafer,
  - c) processing each manufactured wafer to produce a solar cell,
  - d) providing an image of each produced cell,
  - e) comparing each wafer image to each cell image,
  - f) upon match between a cell image and a wafer image, assigning the current cell to the current wafer.
- 10 2. Method according to claim 1, characterized in that step b) and d) comprise depicting the crystallographic structure of the wafer and the cell and step e) comprises comparing the crystallographic structure of the wafer and the cell to one another.
- 15 3. Method according to any of the preceding claims, comprising assigning wafer identification data to the corresponding cell.
4. Method according to any of the preceding claims, comprising:
  - assigning inspection data to each cell,
  - assigning a wafer position to each wafer, and
  - upon match between a cell image and a wafer image, assigning cell inspection data to said wafer position in the ingot.
- 20 5. Method according to claim 4, comprising assigning "breakage" as inspection data for a wafer position when no match between a wafer image and a cell image is found.
6. Method according to claim 4, comprising:
  - adjusting ingot and/or wafer production parameters based on cell inspection data.
- 25 7. Method according to claim 1, wherein the images are provided by means of at least one CCD camera, a CMOS camera, a digital camera or an IR depicting system.
8. Method according to any of the preceding claims, comprising storing the wafer image and the cell image in a memory before and/or after assigning the current cell to the current wafer.
- 30 9. Method according to claim 1, comprising:
  - providing ingot position data and/or manufacturing history for each wafer,
  - providing inspection data for each cell,
  - upon match between a cell image and a wafer image, assigning the current cell's
- 35

inspection data to the current wafer position in the ingot and/or the manufacturing history of the wafer.

10. Method according to claim 9,

5 comprising regulating ingot and/or wafer production based on cell inspection data assigned to wafer manufacturing history and identity, e.g. wafer position in ingot and other elements of the wafer manufacturing history.

11. System for producing solar cells, comprising:

- sectioning devices for manufacturing wafers from a silicon ingot,

- wafer processing devices for producing a solar cell,

10 - at least one imaging device for providing images of wafers and cells,

- a processing unit for comparing a wafer image to a cell image, and upon match between a cell image and a wafer image, assigning the current cell to the current wafer,

- a memory unit.

15 12. System according to claim 11,

characterized in that the imaging device is adapted to provide images of the crystallographic structure of the wafer and the cell and the processing unit is adapted to compare the crystallographic structure of the wafer and the cell to one another.

20 13. System according to claim 11 or 12, where the processing unit is adapted to assign wafer identification data to the corresponding cell.

14. System according to any of the preceding claims, where the processing unit is connected to a cell inspection unit providing cell inspection data, and is adapted to:

- assign inspection data to each cell,

25 - assign a wafer position to each wafer, and

- upon match between a cell image and a wafer image, assign cell inspection data to each wafer position.

30 15. System according to claim 14, wherein when no match between a wafer image and a cell image is found, "breakage" is assigned as inspection data for that wafer position.

16. System according to claim 14, where the processing unit is connected to an input device for ingot and/or wafer production control, and/or is adapted to

- adjust ingot and/or wafer production parameters based on cell inspection data.

35 17. System according to any of the preceding claims, comprising two imaging devices.

18. System according to any of the preceding claims, wherein the imaging device(s) is a CCD camera, a digital camera or an IR depicting system.

19. System according to any of the preceding claims, where the memory unit is adapted to store the wafer image and the cell image in a memory before and/or after 5 a cell is assigned to a wafer.

20. System according to any of the preceding claims and adapted for controlling production parameters in a solar cell production process, characterized in that it comprises:

10 - a unit for providing wafer position data and/or manufacturing history, - a cell inspection unit for providing inspection data for each cell, and that the processing unit is adapted to upon a match between a cell image and a wafer image, assigning the current cell's inspection data to the current wafer and/or wafer position.

15 21. System according to claim 20, where the processing unit is adapted to regulate ingot and/or wafer production based on cell inspection data assigned to wafers and/or wafer positions.